

REMARKS/ARGUMENTS

The Invention

The present invention relates to methods for increasing the efficiency of the transfection of cycling cells. The methods involve synchronizing cells with electromagnetic radiation and transfecting the cells within about one cell cycle with a nucleic acid. The electromagnetic radiation is Gamma rays, X-rays, or ultraviolet rays and the efficiency of transfection is increased about fivefold over cells not contacted with the electromagnetic radiation.

Status of the Claims

Applicants wish to thank Examiner Woitach for extending the courtesy of the telephonic interview held on August 12, 2003 with Applicants' representatives Carol A. Fang and Eugenia Garrett-Wackowski. During this interview, a number of issues were clarified which have helped Applicants to more fully address the concerns of the Examiner. Applicants thank Examiner Woitach for his time.

After entry of this amendment, claims 1-5, 7-10, 12, and 46 are pending. Claims 6, 11, and 13-45 have been canceled without prejudice to future prosecution. Applicants have amended claims 1-5 and 12, and respectfully request entry of these amendments. As amended, claim 1 recites "wherein said electromagnetic radiation is a member selected from the group consisting of: Gamma rays, X-rays, and ultraviolet rays" and "wherein said efficiency of transfection is increased at least about fivefold over cells not contacted with said electromagnetic radiation." Support for this amendment can be found throughout the specification and claims as originally filed, for example, at page 55, line 4-6 and claim 11. In addition, claims 1-5 and 12 have been amended in accordance with the Examiner's suggestion to delete the recitation "high energy." Finally, claim 12 has been amended solely to ensure proper antecedent basis. Thus, no new matter has been introduced by these amendments.

A clean copy of the claims is provided in Appendix A for the Examiner's convenience.

In the Office Action mailed May 16, 2003, the pending claims were rejected under 35 U.S.C. § 112, first paragraph and 35 U.S.C. § 112, second paragraph. Each of these rejections is addressed below.

Objection to the specification

The specification is objected to as failing to provide proper antecedent basis for the term "high energy." As discussed during the interview of August 12, 2003 and in accordance with the Examiner's suggestion, the recitation "high energy" has been deleted from the claims. Accordingly, Applicants respectfully request withdrawal of this objection.

Rejection Under 35 U.S.C. § 112, first paragraph

The claims are rejected, in various combinations, under 35 U.S.C. §112, first paragraph, as allegedly nonenabled. Applicants respectfully traverse. These rejections are addressed below in the order presented by the Examiner.

1. Allegation that the recitation "high energy" is indefinite

Claims 1-5, 11, and 12 stand rejected under 35 U.S.C. 112, first paragraph, as allegedly containing subject matter which is not described in the specification in such a way as to reasonably convey to one of skill in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention. In making the rejection, the Examiner alleges that the recitation "high energy" introduces new matter. As discussed during the interview of August 12, 2003 and in accordance with the Examiner's suggestion, the claims have been amended to delete the recitation "high energy." Accordingly Applicants respectfully request withdrawal of this aspect of the rejection under 35 U.S.C. § 112, first paragraph.

2. Allegation that synchronizing at least 30% of cells is not enabled

Claims 1-12 and 46 are rejected under 35 U.S.C. § 112, first paragraph, as allegedly not enabled for synchronization of at least 30% of the cycling cells. As discussed during the interview of August 12, 2003 and in accordance with the Examiner's suggestion, the claims have been amended to delete the recitation "at least 30%." Therefore, Applicants respectfully request withdrawal of this aspect of the rejection under 35 U.S.C. § 112, first paragraph.

3. Allegation that synchronization of cells using electromagnetic radiation is not enabled

Claims 1-12 and 46 are rejected under 35 U.S.C. § 112, first paragraph, as allegedly not enabled for synchronizing cells in any other stage than G2/M. As discussed above, the present invention is directed to a method of increasing the efficiency of transfection of cycling cells. As discussed during the interview of August 12, 2003 and in accordance with the Examiner's suggestion, the claims have been amended to clarify the scope of the invention. More particularly, the claims have been amended to recite contacting cells with electromagnetic radiation and transfecting the cells with a nucleic acid to increase the efficiency of transfection by about fivefold over cells not contacted with the electromagnetic radiation. Therefore, Applicants respectfully request withdrawal of this aspect of the rejection under 35 U.S.C. § 112, first paragraph.

In view of the foregoing, Applicants respectfully submit that the claims are fully enabled. Accordingly, Applicants urge the Examiner to withdraw the rejection under 35 U.S.C. § 112, first paragraph.

Rejection Under 35 U.S.C. § 112, second paragraph

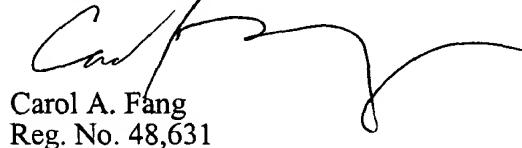
Claims 1-10 and 46 are rejected under 35 U.S.C. § 112, second paragraph, because the recitation "high energy electromagnetic radiation" is allegedly indefinite. As discussed during the interview and in accordance with the Examiner's suggestion, the claims have been amended to delete the recitation "high energy." Accordingly, Applicants urge the Examiner to withdraw the rejection under 35 U.S.C. § 112, second paragraph.

CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, the Examiner is invited to telephone the undersigned at 415-576-0200.

Respectfully submitted,



Carol A. Fang
Reg. No. 48,631

TOWNSEND and TOWNSEND and CREW LLP
Two Embarcadero Center, 8th Floor
San Francisco, California 94111-3834
Tel: 415-576-0200
Fax: 415-576-0300
Attachments

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